

**REMARKS**

Claims 1-26 are pending in the present application. In the Office Action mailed September 22, 2006, the Examiner rejected claims 1-26 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of Foo et al. (USP 6,498,946). The Examiner next rejected claims 7-12 and 25-26 under 35 U.S.C. §101 because the claimed inventions are directed to non-statutory subject matter. Claims 1-5 and 7-26 are rejected under 35 U.S.C. §102(e) as being anticipated by Foo et al., cited by Applicant in the Information Disclosure. Claim 6 is rejected under 35 U.S.C. §103(a) as being obvious over Foo et al.

Applicant has amended claims 2, 7, and 19 to correct typographical errors and to more clearly define that called for therein. Claims 2, 7, and 19 were not amended to overcome a rejection by the Examiner.

The Examiner objected to the abstract for containing a grammatical error. Applicant has amended the abstract as set forth above. Accordingly, Applicant requests withdrawal of the Examiner's objection to the abstract.

The Examiner objected to the disclosure stating that a drawing reference number is associated with an incorrect part of the sentence. *Office Action, 9/22/06*, pg. 2. Applicant respectfully disagrees. The Examiner suggested that the phrase "assembly generally designated 50 to produce . . ." be replaced with "assembly 50 generally designated to produce . . . ." *Id.* As written, the phrase "generally designated" associates the drawing reference number "50" with the gradient coil assembly. That is, the gradient coil assembly is generally designated the "50" drawing reference number. Accordingly, the drawing reference number is associated with the correct part of the sentence. As such, Applicant requests withdrawal of the Examiner's objection.

The Examiner objected to the disclosure stating that "[i]t is noted that label 50 in Figure 2 does not in fact refer to an entire R-R interval, but rather the precise moment of initiation of ventricular systole." *Office Action, 9/22/06*, pg. 2. First, drawing reference number "50" does not appear in Figure 2 as the Examiner stated. Next, the Examiner's suggested modification fails to add additional clarification. Specifically, Applicant believes that it is clear from the context that the trigger 112 is the start of the R-R interval. Accordingly, an amendment as suggested by the Examiner is redundant, and Applicant believes that such an amendment is not required. As such, Applicant requests withdrawal of the Examiner's objection.

The drawings are objected to by the Examiner under 37 CFR §1.83(a). Specifically, it appears that the Examiner used form paragraph 6.36 to object to the drawings. Form paragraph 6.36 requires that the Examiner insert features in bracket 1 that the Examiner deems necessary to

be shown. The Examiner's alleged features that must be shown include "all limitations of the methods of claims 3-12. . . ." *Id.*

First, section 608.02(d) of the MPEP, which includes form paragraph 6.36, states that "[a]ny structural detail that is of sufficient importance to be described should be shown in the drawing. (Ex parte Good, 1911 C.D. 43, 164 O.G. 739 (Comm'r Pat. 1911).)" The Examiner, however, asserted that limitations of methods be shown – not structural detail that is of sufficient importance to be described as explained in MPEP section 608.02(d). Second, section 601.01(f) of the MPEP states that "[i]t has been USPTO practice to treat an application that contains at least one process or method claim as an application for which a drawing is not necessary for an understanding of the invention under 35 U.S.C. 113 (first sentence)."

Accordingly, the Examiner's objection that the drawings fail to show all limitations of the methods of claims 3-12 is not supported by the MPEP, and Applicant requests withdrawal thereof.

The Examiner also objected to the drawings "because reference character '110' has been used to designate both a conventional black blood sequence and an ECG-gated pulse sequence, and it cannot be inferred by common knowledge in the art that the two terms are equivalent." *Id.* Applicant respectfully disagrees. Paragraph 23 of the application refers to an ECG gated pulse sequence 110 shown in Figure 2. Paragraph 24 refers to the ECG gated pulse sequence as a conventional black blood sequence 110 illustrated in Figure 2. As shown in Figure 2, the conventional black blood sequence is an ECG gated pulse sequence. Accordingly, designating the conventional black blood sequence and the ECG gated pulse sequence as reference character "110" is proper. As such, Applicant requests withdrawal of the Examiner's objection.

The Examiner rejected claims 1-26 on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 13 of USP 6,498,946, which calls for "[t]he computer program of claim 10 wherein the sequence extends over one or more R--R intervals." The Examiner stated that "[a] sequence of one or more R-R intervals is inherently successive, and a sequence is equivalent to a train." *Id.*, pg. 3. However, applying a non-selective inversion pulse and a re-inversion pulse in successive R-R intervals as called for in claim 1 is patentably distinct from extending the sequence over one or more R-R intervals as called for in claim 13 of '946, which subject matter does not include applying the non-selective inversion and re-inversion pulses in successive R-R intervals. Similarly, claims 13, 19, and 25, which call for, in part, a first and a second inversion pulse during each heartbeat of a successive train of heartbeats, application of a non-selective inversion RF pulse and a slice-selective re-inversion RF pulse to a slab of slices

during successive R-R intervals, and a non-selective inversion pulse and a slice-selective re-inversion pulse to be carried out in each R-R interval of a train of R-R intervals, respectively, are patentably distinct from extending the sequence over one or more R-R intervals as called for in claim 13 of '946. Claims 1, 13, 19, and 25 of the instant application are not obvious over claim 13 of '946. Furthermore, the Examiner has not identified how claims 2-12, 14-18, 20-24, or 26 of the instant application are not patentably distinct from any claims in '946.

Since claims 1-26 of the instant application are patentably distinct from the claims in '946, Applicant requests withdrawal of the non-statutory double patenting rejection thereof.

The Examiner rejected claims 7-12 under 35 U.S.C. §101 stating that “pulse sequences are electromagnetic signals, and are thereby classified as natural phenomena.” *Id.*, pg. 4. However, the Examiner has not met the burden to show that claims 7-12 are not patentable.

First, Applicant disagrees that the subject matter of claims 7-12 is natural phenomena. That is, that called for in claims 7-12 does not occur naturally.

Second, MPEP §2106 requires that “USPTO personnel must ascertain the scope of the claim to determine whether it covers either a 35 U.S.C. 101 judicial exception or a practical application of a 35 U.S.C. 101 judicial exception.” The Examiner has not presented evidence to show that the Examiner has ascertained that the scope of claims 7-12 are not covered under either a 35 U.S.C. 101 judicial exception or a practical application of a 35 U.S.C. 101 judicial exception. Assuming, arguendo, that the subject matter of claims 7-12 may be classifiable as natural phenomena, the subject matter of claims 7-12 are for a practical application of such natural phenomena.

Third, neither the Official Gazette referred to by the Examiner nor MPEP §2106 state that pulse sequences are electromagnetic signals that are thereby classified as natural phenomena as the Examiner asserted. The Examiner has provided no support for such classification.

The Examiner rejected claims 25-26 under 35 U.S.C. §101 stating that “a computer signal is neither a process, machine, manufacture nor a composition of matter.” *Id.* Again, however, the Examiner has not met the burden to show that claims 25-26 are not patentable. In fact, a signal claim directed to a practical application of electromagnetic energy is statutory regardless of its transitory nature. *See O'Reilly v. Morse*, 56 U.S. (15 How.) 62, 114-19 (1853); *In re Breslow*, 616 F.2d 516, 519-21, 205 USPQ 221, 225-26 (CCPA 1980). The subject matter of claims 25-26 is directed to a practical application of electromagnetic energy and is statutory.

For at least the reasons set forth above, claims 7-12 and 25-26 are believed statutory. Accordingly, Applicant requests withdrawal of the §101 rejections thereof.

The Examiner rejected claims 1-5 and 7-26 under 35 U.S.C. §102(e) as being anticipated by Foo. Applicant respectfully disagrees.

Regarding claims 1 and 25, the Examiner stated that Foo “discloses that the pulse sequence is triggered by the start of an R-R interval (col. 4 line 44), and that the sequence can be performed over multiple R-R intervals (col. 5 line 12).” *Office Action, 9/22/06*, pgs. 4-5. Foo, however, fails to teach applying a non-selective inversion pulse and a re-inversion pulse in successive R-R intervals.

Foo teaches that “[i]t is noted that the sequence 20 can acquire data across either one R-R interval, or multiple R-R intervals, but the salient point being that data is acquired during mid-diastole.” Col. 5, lns. 12-14. However, while Foo may teach acquiring data across either one R-R interval, or multiple R-R intervals, Foo fails to teach applying a non-selective inversion pulse and a re-inversion pulse in successive multiple R-R intervals as called for in claim 1 or a non-selective inversion pulse and a slice-selective re-inversion pulse to be carried out in each R-R interval of a train of R-R intervals as called for in claim 25. That is, Foo fails to teach playing out a non-selective inversion pulse and playing out a re-inversion pulse at all during those additional R-R intervals.

Accordingly, that which is called for in claims 1 and 25 is not shown, disclosed, taught, or suggested in the art of record. As such, Applicant believes claims 1 and 25, and the claims which depend therefrom, are patentably distinct from the art of record.

Regarding claims 7-24, the Examiner stated that “the apparatus illustration provided by Foo (‘946) (Figure 1) is identical to that of the instant application, and therefore both systems are assumed to satisfy the same limitations.” *Id.* However, neither that shown in Figure 1 of Foo nor the description thereof teaches or anticipates that called for in claims 7-24. The Examiner cannot reject the claims of the instant application because a figure of the instant application and a figure of Foo are similar. Instead, the subject matter of the claims of the instant application must be shown to be taught in the art of record. Since Figure 1 of Foo fails to teach that called for in claims 7-24, Applicant believes that claims 7-24 are patentably distinct from the art of record. Accordingly, Applicant requests withdrawal of the rejection thereof.

Therefore, in light of at least the foregoing, Applicant respectfully believes that the present application is in condition for allowance. As a result, Applicant respectfully requests timely issuance of a Notice of Allowance for claims 1-26.

Applicant appreciates the Examiner's consideration of these Amendments and Remarks and cordially invites the Examiner to call the undersigned, should the Examiner consider any matters unresolved.

Respectfully submitted,

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